



INTEGRATING WEARABLE FITNESS TECHNOLOGY AND SELF-REGULATED GOAL SETTING TO ENHANCE CARDIOVASCULAR HEALTH AND PHYSICAL SELF-EFFICACY IN SECONDARY PHYSICAL EDUCATION

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ABSTRACT

Cardiovascular endurance and physical self-efficacy often decline during early adolescence, particularly when traditional physical education (PE) relies on standardized, non-individualized fitness testing. This action research study investigates the impact of integrating wearable heart-rate telemetry combined with a Self-Regulated Goal Setting (SRGS) framework in a high school physical education setting. Over a 10-week period spanning two iterative action cycles, 92 Grade 9 students will utilize continuous heart-rate monitors during cardiorespiratory conditioning units to establish personalized Target Heart Rate (THR) training zones rather than competing against normative peer benchmarks. Using a convergent mixed-methods design, quantitative data will be gathered through time-in-target-zone percentages, the Physical Activity Self-Efficacy Scale (PASES), and the PACER shuttle run assessment. Qualitative data will be captured via weekly reflective digital logs and student semi-structured

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focus groups. Anticipated findings aim to demonstrate that shift-based individual fitness tracking fosters heightened internal locus of control, significantly increases moderate-to-vigorous physical activity (MVPA) time, and improves overall physical self-efficacy among students across varying baseline fitness levels. The results will provide physical educators with a scalable model for tech-supported, personalized fitness instruction.

Keywords: *Physical Education, Wearable Technology, Self-Regulated Goal Setting, Physical Self-Efficacy, Moderate-to-Vigorous Physical Activity (MVPA), Heart Rate Telemetry, Action Research*



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